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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/925,774	08/09/2001	Dale K. Bell	60,130-1118; 01MRA0235	4835

26096 7590 07/17/2003

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SUITE 350  
BIRMINGHAM, MI 48009

EXAMINER
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BURCH, MELODY M

ART UNIT	PAPER NUMBER
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3683

DATE MAILED: 07/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/925,774

Applicant(s)

BELL ET AL.

Examiner

Melody M. Burch

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Oath/Declaration***

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

It does not identify the complete mailing or post office address of each inventor. A mailing or post office address is an address at which an inventor customarily receives his or her mail and may be either a home or business address. The mailing or post office address should include the ZIP Code designation. The mailing or post office address may be provided in an application data sheet or a supplemental oath or declaration. See 37 CFR 1.63(c) and 37 CFR 1.76.

Examiner notes that the city and state of the mailing address of the first inventor are omitted and the state of the mailing address of the second inventor is omitted.

### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: T<sub>T</sub> shown in figure 2. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. See specification objection.

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3. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect may be deferred until after the examiner has considered the proposed drawing correction. Failure to timely submit the proposed drawing correction will result in the abandonment of the application.

### ***Specification***

4. The disclosure is objected to because of the following informalities:
- In line 3 of paragraph 19 on pg. 5 "(t<sub>on</sub>)" should be changed to --(T<sub>on</sub>)-- to be consistent with the drawings;
  - In line 4 of paragraph 19 on pg. 5 "(t)" should be changed to --(T<sub>T</sub>)-- to be consistent with the drawings;

Appropriate correction is required.

### ***Claim Objections***

5. Claim 3 is objected to because of the following informalities:
- In line 2 of claim 3 the phrase "its movement" should be changed to --the movement of said magnetized plunger-- similar to the language used in claim 4.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims lack proper antecedent basis for the following phrases:

- "said vehicle ground support" in lines 6 and 7 of claim 1, in line 1 of claim 2, and in lines 1-3 of claim 10;
- "said electromagnetic field" in lines 1-2 of claim 3.

For examining purposes Examiner has interpreted "a vehicle ground" to be --a vehicle ground support--.

Re: claims 1 and 11. The phrase "A shock absorber" in line 1 of the claims is indefinite. The use of the term "shock absorber" to describe a device that comprises a vehicle ground support or wheel is so different from that which is generally accepted in the art. For examining purposes Examiner has interpreted the claims as being directed to a vehicle suspension assembly comprising a vehicle ground support and a shock absorber comprising a magnetized plunger and a conductive coil as recited.

The remaining listed claims are indefinite due to their dependency from one of claims 1 and 11.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-4, 7, 10-12, 18, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by JP-4300709 (JP '709).

Re: claims 1-4, 18, and 19. JP '709 shows in figure 1 a shock absorber comprising; a magnetized plunger 14, a conductive coil 15 disposed about the magnetized plunger, forming a circuit, and a vehicle ground 13,22 with one of the magnetized plunger and the coil (particularly the magnetized plunger) fixed to move with the vehicle ground support and the coil being selectively actuated to provide a magnetized force resisting movement of the vehicle ground support as disclosed in col. 2 lines 20-23 (based on consultation with Japanese translator) and as suggested in lines 1-10 of the English abstract by the discussion of the suspension control being active.

Re: claim 7. JP '709 shows the circuit comprising a switching circuit 16.

Re: claim 10. JP '709 shows a shock absorber wherein a control 16 and sensor disclosed in col. 2 lines 20-23 senses movement of the vehicle ground support and selectively activates the coil when it is desired to resist movement of the vehicle ground support.

Re: claims 11 and 12. JP '709 shows in figure 1 a shock absorber comprising; a magnetized plunger 14, a conductive coil 15 disposed about the magnetized plunger, forming a circuit, and a wheel 22 connected to move with the magnetized plunger 14 and the coil selectively actuated to resist movement of the magnetized plunger and

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hence the wheel, and a control 16 and sensor disclosed in col. 2 lines 20-23 sensing movement of the wheel and actuating the coil when resistance is desired.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-7, 10-15, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5091679 to Murty et al. in view of JP-4300709.

Re: claims 1-4, 12, 18, and 19. Murty et al. show in figures 1, 2, and 4 a shock absorber comprising; a magnetized element 12, a conductive coil 14a,b,c disposed about the magnetized element, forming a circuit, and a vehicle ground 5,4 with one of the magnetized element and the coil (particularly the magnetized element) fixed to move with the vehicle ground support and the coil being selectively actuated to provide a magnetized force resisting movement of the vehicle ground support as disclosed in col. 2 lines 15-18.

Murty et al. lack the limitation of a magnetized element and coil assembly being in the form of a magnetized *plunger* and coil assembly.

JP-4300709 teaches in figure 1 the use of a shock absorber used in an active suspension system having a magnetized plunger 14 and coil 15 assembly in which the coil is selectively actuated to provide magnetic resistive forces.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the magnetic element and coil assembly of Murty et al. to have included a magnetic plunger and coil assembly, as taught by JP-4300709, in order to provide a simpler shock absorber apparatus that eliminates the need for a rotary-to-linear converter.

Re: claims 5 and 13. Murty et al., as modified, teach the limitation of a battery 16 in communication with the circuit. See figure 4 of Murty et al.

Re: claims 6, 14, and 20. Murty et al., as modified, teach the limitation of the battery storing electric energy generated by the movement of the magnetized plunger relative to the coil. See col. 1 lines 49-51, col. 2 lines 44-46, and col. 6 lines 4-6 of Murty et al.

Re: claims 7 and 15. Murty et al., as modified, teach the limitation of the circuit comprising a switching circuit 20,22,24,26,28,30. See figure 4 of Murty et al.

Re: claims 10 and 11. Murty et al., as modified, the limitation of a control 44 which senses movement of the vehicle ground support and selectively actuates the coil when it is desired to resist movement of the vehicle ground support. See figure 4 of Murty et al.

12. Claims 5, 6, 13, 14, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-4300709 in view of US Patent 5091679 to Murty et al.

Re: claims 5 and 13. JP '709 describes the invention substantially as set forth above, but does not include the limitation of a battery being in communication with the circuit.



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Murty et al. teach in figure 4 the use of a shock absorber comprising a magnetized element 12 and a conductive coil 14a-14c forming a circuit, the shock absorber including a battery 16 in communication with the circuit.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the circuit of JP '709 to have included communication with a battery, as taught by Murty et al., in order to provide a means of energizing the conductive coil as taught by Murty et al. in col. 5 lines 52-55.

Re: claims 6, 14, and 20. JP '709 describes the invention substantially as set forth above, but does not include the limitation of storing in a battery energy generated by the movement of the magnetized plunger relative to the coil.

Murty et al. teach in col. 1 lines 49-51 and in col. 2 lines 44-46 the use a battery for storing electric energy generated by the suspension movements. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the circuit of JP '709 to have included communication with a battery that stores electric energy generated by the movement of the plunger relative to the coil, as taught by Murty et al., in order to provide a means of conserving energy for later use by electrical apparatuses of the vehicle.

13. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP-4300709 in view of US Patent 3513408 to McGee.

JP '709 describes the invention substantially as set forth above, including the use of a switching circuit 16, but does not specifically disclose or show that the switching circuit includes a field effect transistor.

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McGee teaches in figure 2 the use of a magnetized plunger/conductive coil apparatus comprising a switching circuit including a field effect transistor 11.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching circuit of JP '709 to have included a field effect transistor, as taught by McGee, in order to provide a device that occupies minimum real estate and that provides the advantage of a fast response time.

14. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murty et al. in view of JP-4300709 as applied to claims 7 and 15 above, and further in view of US Patent 3513408 to McGee.

Murty et al., as modified, describe the invention substantially as set forth above, including the use of a switching circuit but does not specifically disclose or show that the switching circuit includes a field effect transistor.

McGee teaches in figure 2 the use of a magnetized plunger/conductive coil apparatus comprising a switching circuit including a field effect transistor 11.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching circuit of Murty et al., as modified, to have included a field effect transistor, as taught by McGee, in order to provide a device that occupies minimum real estate and that provides the advantage of a fast response time.

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**15.** Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP-4300709 in view of McGee as applied to claim 8 above, and further in view of US Patent 6005316 to Harris.

JP '709, as modified, describes the invention substantially as set forth above, but does not specifically state that the switching circuit switches at a higher frequency than the frequency of movement of the magnetized plunger.

Harris teaches in col. 1 lines 23-25 the use of switching circuits switching at a higher frequency than the frequency of a moving element being controlled.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching circuit of JP '709, as modified, to have provided switching at a higher frequency than the frequency of movement of the magnetized plunger, in view of the teachings of Harris, in order to provide a means of accurately controlling the position of the magnetized plunger.

**16.** Claims 9 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murty et al. in view of JP-4300709 and McGee as applied to claims 8 and 16 above, and further in view of in view of US Patent 6005316 to Harris.

Murty et al., as modified, describes the invention substantially as set forth above, but does not specifically state that the switching circuit switches at a higher frequency than the frequency of movement of the magnetized plunger.

Harris teaches in col. 1 lines 23-25 the use of switching circuits switching at a higher frequency than the frequency of a moving element being controlled.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching circuit of Murty et al., as modified, to have provided switching at a higher frequency than the frequency of movement of the magnetized plunger, in view of the teachings of Harris, in order to provide a means of accurately controlling the position of the magnetized plunger.

### ***Conclusion***

17. In order to complete the record, it should be noted that no conflict appears to presently exist between the subject matter defined by the instant claims and the subject matter of the claims of applicant's and/or assignee's copending non-published application 09/643805 cited on Applicant's form 1449 now US Patent 6361664 to Fader et al. has been made of record. Accordingly, no double patenting rejection is entered into the instant application. See MPEP 804+ concerning double patenting type of rejections, if necessary. Applicant and/or assignee should maintain this clear line of patentable distinction between the instant claims and the claims of the indicated patent application. The patent is directed to a vehicle suspension system and the application is directed to a subcombination of the vehicle suspension system or a shock absorber specifically comprising a magnetized plunger and a conductive coil with the coil being actuated to resist movement of a vehicle ground support connected to one of the plunger and the coil.

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 6565073 to Carstedt et al. has a later filing date than that of the instant application. Also, for double patenting purposes Examiner has

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interpreted Meritor Light Vehicle Technology, LLC (the assignee of Patent 6565073) as being a different assignee from Meritor Heavy Vehicle Technology, LLC (the assignee of the instant invention) since Applicant has not provided evidence that the two companies are commonly owned by an umbrella company. US Patents 4892328 to Kurtzman et al., 5293969 to Yamaoka et al., 4351515 to Yoshida, 2973969 to Thall, 3941402 to Yankowski et al., 5251729 to Nehl et al., and foreign patents JP-565007 and JP-4185926 teach similar electromagnetic shock absorbing assemblies for a vehicle suspension. US Patent 6279704 to Manfredotti discloses an active vibration device to control the motion of a flapping mass of a helicopter structure.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melody M. Burch whose telephone number is 703-306-4618. The examiner can normally be reached on Monday-Friday (7:30 AM-4:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder can be reached on 703-308-3421. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

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July 11, 2003

*Melody M. Burch*  
*7/11/03*